UNIVERSITY OF CALIFORNIA
COLLEGE OF AGRICULTURE
BERKELEY, CALIFORNIA

AGRICULTURAL EXPERIMENT STATION
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CIRCULAR No. 17.

(JANUARY, 1906.)

WHY THE FRIENDS OF AGRICULTURAL PROGRESS BELIEVE THAT AGRICULTURE SHOULD AND WILL BE TAUGHT IN THE PUBLIC SCHOOLS.

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Read at the joint session of the California Teachers' Association and the State Farmers' Institute, held at the University of California, December 26–29, 1905.

The movement for the introduction of instruction in agriculture into secondary and primary schools is passing rapidly from the stage of agitation to that of action and realization. The agitation of this subject in this country began in the days when Washington, a great farmer as well as a great general and statesman, was the foremost man in the new republic. It has ebbed and flowed many times since then without leaving any lasting impress on our educational system, until within the last decade it has gathered such volume and assumed such substantial form that the permanent accomplishment of its object seems assured.

When we inquire why this is so the reasons are many, but they may be grouped under two or three main heads. In general, the claims of agriculture to a place in our public-school system are based both on the economic, social, and educational needs of agriculture and agricultural people as related to our present civilization, and on the pedagogic requirements of a school system which shall be adapted to the masses of people in a democratic and industrial state, and to the symmetrical culture of the mind and body of the human child. In a word, intelligent farmers and learned pedagogues approaching the subject from their respective standpoints now meet on a common platform and, each party using the arguments appropriate to his calling, agree that agriculture is a fit and useful subject to be taught in public schools. Hence, the friends of agricultural progress in this country have good reason to believe that ere long agriculture will be generally taught in our schools and form a permanent part of the public-school curriculum.

It may therefore be appropriate on this occasion, when farmers and teachers are met together for conference on educational matters, to briefly review some of the arguments advanced nowadays by those who favor agricultural instruction in the public schools.

And it should be understood at the outset that agriculture is here used in a broad sense to include farming, horticulture, floriculture, and forestry—the village garden and the city park, as well as the ranch or the orchard.

Let the farmers speak first, for they furnish the pupils and support the schools.

An old argument, which has not altogether lost its force, is that agriculture is a great and fundamental industry. On the successful prosecution of agriculture depends the continued existence and prosperity of the whole human race. By agriculture we are all fed and clothed and in a large measure are provided with dwellings and the material comforts of civilization. Whether we consider the extent of the surface of our globe used for agriculture, the number of men who work on the farms and in the gardens and forests, or the variety, amount, and value of the products, agriculture is a great subject, and would be strangely left out of account in our schools. In the United States alone, leaving out the forests, about 850,000,000 acres are devoted to agriculture; there are nearly 6,000,000 farms, on which 10,000,000 men work for the direct support of a rural population of 40,000,000 souls. The value of these farms and their equipment is over $20,000,000,000, and the value of their products in 1905 is $6,415,000,000. "The manufacturing industries that depend upon farm products for raw materials employed 2,145,000 persons in 1900, and used a capital of $4,132,000,000."

But the bigness and fundamental character of agriculture may be used chiefly to draw attention to the economic, social, and educational needs of the agricultural people as a large section of the community using the public schools. Economically speaking, the farmer or horticulturist of to-day and of the future must be a more intelligent and better informed man than his predecessor, in order to compete on advantageous terms with men in other callings and to secure sure and adequate returns for his labor and capital. He must know how to permanently maintain the fertility of the soil, what crops are best adapted to his locality, how to select and improve varieties, what methods of cultivation, irrigation, and drainage will enable him to make the most productive and beneficial use of the available water supply, which machines are best adapted to particular uses and how they can be most economically maintained, what kinds of animals are most profitable to keep and how they can be improved, what methods

of storage, packing, and marketing will yield the best results, what remedies to apply in plant or animal diseases, how to prevent ravages by insects, birds, and animals. Merely as a money-maker, the farmer can not afford to limit his knowledge to his own experience and the observation of his family and his neighbors. He must have some acquaintance with the general experience in such matters and know how to utilize information gathered and printed. This requires preliminary technical training in school at an early age as the surest and best preparation for a successful farm practice.

Moreover, the American farmer needs to learn somewhere that in the age on which we are now entering the coöperative spirit will be more and more essential to the best economic conditions of agriculture, as of other industries. The farmer in this country has thus far been the bulwark of an individualistic organization of industry and of society in general. But we are beginning to see that excessive individualism in industry is resulting in an overweening aristocratic, or plutocratic, or oligarchic control of industries, and that in some way we must evolve the true coöperative organization of our industries if we are to perpetuate the democratic character of our social and legal institutions. The farmer boy studying agriculture with his comrades in the public schools will more readily grasp the idea that community interests are advantageous in agriculture, and we shall thus produce generations of farmers who will work together for the right advancement of their industry.

The unintelligent farmer in every age and land has sunk to the level of a stolid and unprogressive peasantry, and in this way, in spite of the efforts of great statesmen and philanthropists, the general level of prosperity among farmers has been kept very low. One of the most discouraging effects of a visit to the Old World by an American is the observation of the general poverty of the masses after all the centuries of civilization—the absolute ruin of the soil in such countries as Palestine, once the land flowing with milk and honey, the almost intolerable burdens put upon farm women and children even in such enlightened countries as Germany and Belgium, the extreme want often seen in rural communities in Spain, Italy, and Ireland. Surely we do not want such an outcome for American farmers.

You may say we are not suffering from these things in America. Then perhaps you have not seen the conditions among negroes and poor whites in the black belt of the South Atlantic and Gulf States, or the uplands of the Alleghenies, or some semi-arid districts of the Great Plains, or our Mexican population in the Southwest. Or you possibly may not know that by ignorance or a blind disregard of universal experience we are wiping out our forests East and West, North and

South, thus not only causing a dearth of timber, but making conditions of rainfall and soil-washing which, unless speedily prevented, will ruin absolutely great agricultural regions. Ask Spain, for example, if this is not the sure result of cutting off forests from hillsides and mountains.

In a strong paper before the recent convention of the Association of American Agricultural Colleges and Experiment Stations at Washington, Professor Hopkins of the Illinois College of Agriculture, one of our leading experts on soils, said:

"Are there fields in Virginia where once great crops of corn were grown, and now no one cares to pay the taxes? Are there farms in the famous Mohawk Valley that can be purchased for less than the farm buildings once cost? Are there agricultural lands in the Western Reserve which were sold half a century ago for $100 an acre now bought for $50 or less? Are the wonderful prairie soils of the West producing less and less? To all these questions men who know the facts answer, yes."

Even in California fertile soil and favorable climate have not prevented the coming in of great hindrances to successful agriculture, due to the ignorance and heedlessness of farm owners and managers. A one-crop system of agriculture has here produced the same ruinous results that it has wherever pursued in ancient or modern times. I am informed that in certain regions of this State the average yield of wheat per acre has fallen from 17 to 3 sacks, and the value of agricultural lands from $100 to from $35 to $10 per acre. Irrigation without proper provision for drainage is a growing menace to the prosperity of fruit-growing districts when the value of orchards and vineyards is normally many hundreds of dollars per acre.

Irrigation practice and the extension of its influences are seriously retarded by expensive litigation and the failure to provide a rational and equitable code of irrigation laws. Economic and social problems connected with the division of the great ranches into small farms to be owned by their occupants, the establishment of a permanent agricultural population to take the place of the roving and often alien bands of farm laborers, and the improvement of the social and domestic conditions of farm life are here sufficient to call for the best thought and the most active coöperation of all the educational and moral forces of the State in devising ways and means for their satisfactory solution.

The reason that California's agricultural possibilities have not been more fully realized is because that in order to do this the State must have a farming population of more than ordinary breadth of vision and more than average capacity and training in the conduct of agricultural affairs. The farmer of California must have some mechanical skill, as well as intelligence in the selection and management of crops. He must

know how to lay out ditches and drains, as well as to cultivate and harvest grains and fruits. Often his water supply is furnished by pumping, and he must know something about machinery in order to determine the types to be selected and the kind of power to be employed. The markets of California are not local. They include the whole of this country and are beginning to include many other countries. The question of freight rates and the manner of preparing products for shipment are live issues in a sense unknown to many of the Eastern farmers. It is not a matter of accident that California is to-day pre-eminently the State of coöperative experiments. It is forced upon people by their separation from the rest of the world and by the great interests with which they have to contend. The grain growers coöperate to carry on experiments for the improvement of the product, to widen their markets, and to secure better freight rates. The fruit growers coöperate to extend their trade and to protect themselves from the abuses of the commission merchant. The most successful irrigation communities are those where coöperation has had the largest development, and this grows out of the fact that men are bound together by their common ties of dependence on the river first, and then on the canal.

While the advantages of California are so great as to arouse an incentive to realize them to the utmost degree, there are also obstacles to their realization almost equal in magnitude. The working out of a plan whereby the Sacramento and San Joaquin rivers can be used in irrigation without injuring the navigation interests and arousing their fatal antagonism, is one example of the problems confronting agricultural progress in this State. The control of the flood waters of these rivers, so as to make possible the cultivation of the overflowed lands, is another. I am informed that there are over 750,000 acres of these lands and that the portion reclaimed has shown enormous returns, reaching as high as $500 an acre for a single crop; but to make these complete the floods of the river must be controlled—in itself a great engineering problem; after that, the levees and drains and pumping works, which are to lower the water plane and put this land in condition for production, must be laid out by trained agricultural engineers. If this work is successfully done, it means a great increase in the population and productive wealth of the State; but the possibilities for mistakes, for the carrying out of plans that will involve waste and loss, or for the still greater danger of attempting to continue development without any plan at all, as has been largely done in the utilization of the water supplies of the State, are so great that every educational agency within the State should be directed toward their study and to the training of the great body of the State's farmers to understand and deal with them in a wise and adequate fashion.

But in addition to the economic needs of agriculture there are the social needs of agricultural people. In the great region west of the Mississippi River our rural communities are passing out of the pioneer stage. The people have made homes on the land and must now look forward to the steady development of civilized life in organized communities. The land has largely passed into private ownership, grazing as an occupation is being restricted, one-crop agriculture is passing away, irrigation is becoming more prevalent, the great ranches are being broken up, mining, manufacturing, and commercial enterprises generally are settling down and their methods are conforming more and more closely to those of business in old communities. The free and independent life of the range, the mining camp, and the frontier trading post has gone forever.

In obedience to the general influences of our developing civilization and the peculiar tendencies of farming under irrigation, our Western farmers are inevitably being drawn into closer social ties, and the currents of their lives are intermingling with those of the communities in which they live in ways which as yet they are loth to recognize, and the general results of which they are as a rule too innocent or too ignorant to discern. Too often already in a blind pride of independence they are either isolating themselves from the great world of progress or foolishly going their own way against their own interests, when by joining with their neighbors in enterprises for the common good they might benefit both themselves and others.

Meanwhile, the other forces of society are more and more banding themselves together to control the ballot-box, legislation, social institutions, and the general conduct of affairs. Unless the farmers can be so educated that as a mass they will have the coöperative spirit, have some real and vital understanding of community of interests, and know how to mingle to their own advantage with men of other vocations, their lives will forever run in a narrow and monotonous channel and the control of even their own affairs will largely pass into the hands of other men. Isolation, narrow-mindedness, and lack of appreciation of the broader and finer aspects of human life have ever been millstones about the necks of agricultural people, even though they may have possessed much of rugged honesty, diligence, and patience.

Fortunately the material development of our civilization is doing much to overcome the isolating tendencies of farm life. Electricity, the modern magician, is bringing the telegraph, telephones, electric lights and power, and the trolley car to the service of our farmers to break down the barriers of isolation and put them in touch with the whole world; and the free mail delivery is also a powerful aid in the same direction. But how little has yet been done to provide the farmers'

families with libraries, clubs, and refined musical and other entertainments and to make the surroundings of the farm home and the rural village attractive and elevating. Or, in general, to cultivate the social or community instinct according to the conditions of the rural environment with a view to making country life in every essential the equal, if not the superior, of city life from the standpoint of a highly refined and civilized humanity.

But if our agricultural people have great economic and social needs, they also have what may be termed educational needs which are even more important and fundamental. For after all it is the untrained mind of the farmer which holds him down to a dull routine, keeps him in isolation, and condemns him to comparative poverty. And by education, I do not of course mean merely the imparting of education. It is rather the developing of the mind, the broadening and clarifying of the mental outlook, the giving of the right turn to the mental processes, the strengthening of the will and of the power to use the appropriate means to accomplish useful ends. The education which the farmer needs is that which will give him some real appreciation of the progressive and scientific spirit of the age in which he lives, will arouse a keen interest in the facts and principles of science as related to his own vocation, will show him that in agriculture is an ample opportunity for lifelong studies which may refresh and delight the mind, as well as minister to material success, and in general will lift agricultural practice out of drudgery into the domain of intelligent and hopeful labor.

The educated and useful lawyer devotes days and nights to the most arduous toil in the preparation of his cases, but is inspired in his task by the keen relish for the conflict of wit which he knows will come when he faces the opposing counsel before judge and jury in the court-room, or he is buoyed up by the hope that he will right some great wrong or save some innocent fellowman from undeserved punishment. It is not the fee, but the mental satisfaction in his work that makes him love his profession and give to its practice the best energies of his life.

The physician studies long and hard in preparation for his profession, and then if successful is more and more absorbed in struggles with suffering and death, and oppressed with an ever-increasing sense of the limitations of his knowledge and his skill. But his heart is in his work, because he hopes to alleviate pain and prolong useful lives, if only he can find effective ways in which to apply scientific principles to the special needs of diseased human bodies.

Is there any good reason why the farmer, who uses the elements and principles of the natural world to supply mankind with food and clothing and whose labor makes it possible for civilized life to exist and

develop, should not be so educated that he will find in his business much mental stimulus and delight?

So the farmer comes with his economic, social, and educational needs to the teacher and asks what the schools can do to make him a more successful business man, a better citizen and neighbor, a more intelligent and happy man. And he expects an answer based on an intelligent and sympathetic appreciation of his needs, as well as on an up-to-date understanding of the functions of a public-school system organized with reference to the requirements of the masses of youth in a democratic state and ideals of education, which, however firmly they may be rooted in the general experience of mankind in the past, are nevertheless growing and expanding in the light and air of the twentieth century after Christ.

The educator who receives the farmer in this spirit can, I believe, give an encouraging reply to his appeal. The American public-school system has in recent years entered on a new stage of development. Framed originally after old-world models designed chiefly to meet the requirements of the favored few in aristocratic communities who were destined to be the leaders in church and state, it naturally developed at first chiefly along literary lines.

The first step was to overcome the prejudice against giving the most elementary education freely to all the children. Then it became necessary to keep pace with the mighty tide of civilization which swept across the continent and was greatly augmented by the millions of immigrants from foreign lands. It is a wonderful conquest which our public schools have had in overcoming illiteracy over so vast an area, and yet this achievement is not complete, for the last census showed that about one in ten of the men of voting age in this republic could neither read nor write.

For many years the chief effort of our educational managers was to plant a schoolhouse at every crossroads so that no country child might be deprived of the chance to get at least the rudiments of an education. In some respects this effort went too far. The school districts were often made too small to permit the establishment of effective schools, and now a reaction has begun in favor of consolidating the rural schools, bringing the child to the school instead of the school to the child.

Then came the struggle to establish the principle that free public education was to extend beyond the elementary schools to the secondary school and even to the college. The newer communities west of the Alleghenies gave the readiest welcome to this new educational propaganda, and it is in them that the public high school and the State college and university have had their most complete and successful development.

As millions of children came to be in the elementary schools and hundreds of thousands in the high schools, it became apparent that the old literary curricula and the general atmosphere of school life on the old basis created a distaste for the manual occupations in which the vast majority of all the students in public schools must engage during their adult life.

And thus the problem has presented itself to our educators of so changing the public schools as to bring their work into vital relations with the real life and activities of the masses of our people. This is the stage of educational development in the midst of which we are to-day.

Naturally the movement for the remodeling of our school system to meet the requirements of industrial life had its most active development first in the cities, where the school system was most highly organized and where the very rapid increase in the extent and variety of mechanic arts and manufactures created a tremendous demand for youthful workers whose minds had been prepared to deal with the problems presented in such pursuits. Already provision for the teaching of mechanic arts in the public schools is made in 40 states. While in 1890 there were only 37 cities of 8,000 population and over in which manual training was taught in the public schools, in 1902 there were 270 such cities. San Francisco and Los Angeles are among this number.

But much more important than the actual changes in school curricula already made under the impulse of the industrial forces of the country is the result which has attended the study of the fundamental problems of education by our leading educational authorities in recent years. For, after all, it is right ideals of education that we need to have. The training of the man which will best fit him to use his powers for good ends and to live the highest and best kind of life is after all the business of the school. We do not want the children of this free republic to be trained to run in grooves made for them by their environment, whether in the home or in the school. The elementary and secondary schools are not to make farmers or carpenters or lawyers, but good citizens and useful men and women likely to become capable and willing workers in any line to which in more mature years they may devote themselves.

As a friend of the farmers and all classes of good people, I listen therefore with the profoundest attention to what our educational leaders have to say about the ideals of education best adapted to create schools for making useful and happy men and women out of the boys and girls of our day. And so I invite your attention to a summing up of this matter by Paul H. Hanus, professor of the history and art of teaching in Harvard University, in his book entitled "A Modern School":

"The education demanded by a democratic society to-day is an education that prepares a youth to overcome the inevitable difficulties that stand in the way of his material and spiritual advancement; an education that, from the beginning, promotes his normal physical development through the most salutary environment and appropriate physical training; that opens his mind and lets the world in through every natural power of observation and assimilation; that cultivates handpower as well as headpower; that inculcates the appreciation of beauty in nature and in art, and insists on the performance of duty to self and to others; an education that in youth and early manhood, while continuing the work already done, enables the youth to discover his own powers and limitations, and that impels him through oft-repeated intellectual conquests or other forms of productive effort to look forward to a life of habitual achievement with his head or his hands, or both; that enables him to analyze for himself the intellectual, economic, and political problems of his time, and that gives the insight, the interest, and the power to deal with them as successfully as possible for his own advancement and for social service; and, finally, that causes him to realize that the only way to win and to retain the prizes of life, namely, wealth, culture, leisure, honor, is an ever-increasing usefulness, and thus makes him feel that a life without growth and without service is not worth living.

"That is to say, the education demanded by democratic society in modern times must be a *preparation for an active life.* Now, the only real preparation for life's duties, opportunities, and privileges is *participation* in them so far as they can be rendered intelligible, interesting, and accessible to children and youth of school age; and hence the first duty of all education is to provide this participation as fully and as freely as possible. From the beginning, such an education can not be limited to the school arts—reading, writing, ciphering. It must acquaint the pupil with his material and social environment, in order that every avenue to knowledge may be opened to him, and every incipient power to receive appropriate cultivation. Any other course is a *postponement of education,* not education. Such a postponement is a permanent loss to the individual and to society. It is a perversion of opportunity, and an economic waste.

"We have but lately learned this lesson. We have learned that reading, writing, arithmetic, and English grammar—the school arts—constitute only the instruments of an elementary education and not education itself. To concentrate a child's attention on the school arts during eight or nine years is to exaggerate their importance, is to regard them as an end in themselves, instead of a means to an end. It is true the school arts must be learned; the pupil's later progress will depend

largely on his command over oral, written, and printed speech, but it does not require eight or nine years of almost exclusive devotion to the school arts to acquire this command. Such exclusive devotion to the school arts cuts the pupil off from the very education we are aiming at, namely, preparation for life interests through participation in them. Eight or nine years spent on the school arts, together with book geography and a little United States history, have usually left the pupil at about fourteen years of age without a permanent interest in nature, or in human institutions and human achievements whether in the field of literature, science, and art, or in the industrial, commercial, and political life of his time; and, what is worse, without much inclination to acquire such interest by further study.

"This is the natural result of an attempt to prepare for life without using life's opportunities as the source and means of such preparation. Accordingly we have changed our plan. Through elementary natural science we are bringing nature into the school-room and we go out to meet it; we bring literature, history, civics, art, manual training, and an elementary study of industry and commerce into the school as a means of preparation for life, instead of 'preparing' our pupils for contact with these sources of inspiration, guidance, and training in an indefinite future. * * *

"We seem to hesitate about such training at public expense because it is useful! Indeed, we have beaten about the bush a good deal to find other than utilitarian arguments to support the plea for instruction in sewing, cooking, household sanitation, and decoration—the household arts generally. I am prepared to admit that these pursuits have important general educational value. But the chief reason why they should be taught is their supreme usefulness to everybody, not less universally useful in their own sphere than reading, writing, and ciphering—the 'school arts'—are in theirs.

"I hope we shall soon go a step farther, therefore, and make liberal provision for elementary training in agricultural, industrial, and commercial pursuits, in addition to general manual training at the upper end of the grammar school and also at the upper end of the high school. This is a new 'enrichment' of the program of study, much needed. And it will not add to the burdens of the pupils."

How encouraging such sentiments are: They show that the movement for industrial education has a substantial pedagogic basis. The friends of agricultural education should never lose sight of this. We are not claiming anything special for agriculture as a particular art. It is rather agriculture and mechanic arts (including domestic arts) as universal factors of human life that we demand shall have recognition in our public-school system.

Under the terms agriculture and mechanic arts in their broadest application may fairly be included all the dealings of man with the natural world (*i. e.,* with the mineral kingdom and with plants and animals), for his own advantage; and in a true sense agriculture and mechanic arts are just as much a part of the common life of mankind as music, language, or mathematics. For this reason studies in agriculture and mechanic arts should be a constituent element of the entire educational system. In the lower schools we should not seek to introduce the teaching of particular industries and trades in agriculture and mechanic arts, but rather instruction in those facts and principles which lie at the basis of all agriculture or mechanic arts and those operations which form a natural introduction to all agricultural industries and mechanical pursuits.

The training of the hand and of the practical sense which may be given through instruction directly related to industries is an essential and valuable feature of a well-rounded education and should be given to all children, whether they are destined to make manual arts their lifework or not. We will not permit the adherents of old educational ideals to set an *industrial* education over against what they call a *cultural* education. It is an education truly and completely cultural which we demand, and our insistence is that no education can be completely cultural which does not contain the manual or industrial element.

It is not the old trade-school which we wish to revive and make a part of our public-school system. The object is not to cut out the old studies which educators agree should be included in all elementary and secondary courses, but rather by a more judicious selection of the topics to be taught in the various branches, make room for the enrichment of the public-school courses by the introduction of instruction in agriculture, mechanic arts, and domestic science. The elimination of useless topics and the judicious employment of the elective system in the high school will allow agriculture to be taught in an effective way and make the atmosphere of the school-room favorable to the cultivation of a love for country life. That is why we stand with such progressive teachers as Prof. Frank M. McMurry, of the Teachers' College of Columbia University, who in a recent article on "Advisable Omissions from the Elementary Curriculum" says, "Life is too full of large specific ends to be attained to allow time for work which has no really tangible object"; and Prof. Maxwell, Superintendent of Schools in Greater New York, who as President of the National Educational Association, said last summer at Asbury Park:

"Again take the teaching of agriculture. While our soil seemed inexhaustible in fertility as in extent, the need of such teaching was not felt. Now, however, we are obliged to have recourse to lands that produce

only under irrigation. The rural schools have added to our difficulties by teaching their pupils only what seemed most necessary for success when they should move to the city. The farms of New England are, in large measure, deserted or are passing into alien hands. To retain the country boy on the land and to keep our soil from exhaustion, it is high time that all our rural schools turned their attention, as some of them have done, to scientific agriculture. There is no study of greater importance. There is none more entertaining. If every country boy could become, according to his ability, a Burbank, increasing the yield of the fruit tree, the grain field, and the cotton plantation, producing food and clothing where before there was only waste, what riches would be added to our country, what happiness would be infused into life! To obtain one plant that will metamorphose the field or the garden, ten thousand plants must be grown and destroyed. To find one Burbank, ten thousand boys must be trained, but unlike the plants, all the boys will have been benefited. The gain to the nation would be incalculable. Scientific agriculture, practically taught, is as necessary for the rural school as is manual training for the city school."

The teacher can also now say for the encouragement of the farmer that owing largely to the work of the United States Department of Agriculture and the agricultural colleges and experiment stations in California and the other states, there is now a large body of definite knowledge which may be called the principles of agriculture. And this knowledge has been already more or less completely reduced to pedagogic form for use in various grades of schools.

Such elementary textbooks as Burkett and Hill's Agriculture for Beginners; Goff and Mayne's First Principles of Agriculture; Goodrich's First Book of Farming; Bailey's Principles of Agriculture; Brook's Agriculture (a correspondence course), may serve as a good introduction to the more advanced works such as Hunt's Cereals in America; Jordan's Feeding of Animals; King's Soil, Irrigation and Drainage, and Physics of Agriculture; Decher's Dairying; Snyder's Chemistry of Plant and Animal Life; Mead's Irrigation Institutions; Taylor's Agricultural Economics, etc.

For general reference books we have the new International Encyclopedia, Bailey's Encyclopedia of Horticulture, Wilcox and Smith's Encyclopedia for Farmers, Bailey's Garden Craft and Rural Science Series, the Yearbooks and Farmers' Bulletins of the U. S. Department of Agriculture, and the bulletins of the State experiment stations, etc.

If agricultural textbooks do not already exist which are especially adapted to California, the publishers will have them prepared just as soon as your school authorities call for them. Of course improvements will be made in the books and appliances for agricultural instruction

just as they are constantly being made in those for the natural sciences and even the ancient languages. I observe that the Latin textbooks my children are using now are quite different from those I studied as a boy, or even those I used as a teacher after I graduated from college. No teacher can excuse himself from teaching agriculture to-day because there are no books or helps to such instruction.

Moreover, we already have successful examples of the teaching of agriculture in the schools. Thus secondary and primary agricultural instruction has been given for many years in the schools of France, Belgium, Denmark, and Germany, and in recent years in Massachusetts, California, Minnesota, Nebraska, Wisconsin, and Alabama, and to negroes at Hampton, Va., and Tuskegee, Ala., and a number of other schools for this race in different Southern States, and already thousands of children in the elementary schools in this country are receiving instruction relating to agriculture, often under the name of nature study.

Thus our argument is complete. The farmer boy or girl comes to the public school with fundamental economic, social, and educational needs that should be met with special training in agricultural lines. The teacher comes to the public schools with new ideals of education that make the industrial element an essential of sound education and with an abundance of material for useful instruction in agriculture. Surely old-time traditions and prejudices can not long bar the way to the effective teaching of agriculture in our public schools.

But some one rises up and says it will cost too much to give farmers' children such instruction in the public schools. I can not believe that such an argument will have much weight with the American public in general, or with the California public in particular.

No doubt we must pay more for our public schools in the future than we have in the past. We must have better schoolhouses, better trained teachers, and more apparatus and illustrative material, and we must pay the bills for these things. But it has been proved over and over again that education of the right kind promotes industrial wealth, as well as the general well-being of mankind. And if the states where the public-school system of the past with all its limitations and defects has been most thorough in its work, have been the states where the general level of material prosperity has risen highest, and no man who knows the facts will deny this, surely it is reasonable to expect that an education which aims directly to promote industrial efficiency, as the new education does, will more than pay for its increased cost by the increased wealth which it will produce. If literary education has been a very profitable investment for the American public, industrial education is likely to prove a bonanza.